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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,817	02/25/2000	Kazuyoshi Kawaguchi	1115-0008-2	6700

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EXAMINER
KUMAR, SRILAKSHMI K

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 09/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No. 09/512,817	Applicant(s) KAWAGUCHI ET AL.
	Examiner Srilakshmi K. Kumar	Art Unit 2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☒ All b)☐ Some * c)☐ None of:

   1.☒ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____ .

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2.   Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Scheffer et al.

(US 5,852,429).

As to independent claim 1, Scheffer et al disclose a driving method for a liquid crystal

display device comprising selecting simultaneously a plurality of lines of row electrode in a

liquid crystal display device comprising a plurality of row electrodes and a plurality of column

electrodes and applying predetermined voltages to the selected lines of row electrode during a

selection period, the driving method being characterized wherein, the selection period of a

display frame is divided, and column electrodes are driven with a voltage pattern so as to reduce

a change of voltage level in each of the divided periods (col.3, lines 25-49).

As to independent claim 8, limitations of claim 1, and further comprising, a method for a

display device having display elements in a matrix form and producing voltage levels for

effecting a gradation display, the method for a display device comprising: in a plurality of

continuous display frames, a time of at least one frame period is made different from that of

other frame period (col. 3, lines 7-62), the selection period of at least one frame in the plurality

of display frames is divided into divided selection periods (Figs. 7 and 8), on-data and off-data are provided in the selection period of the non-divided frame period and the divided selection periods to produce a plurality of voltage levels, and the plurality of voltage levels are used for a display except for the voltage levels in the vicinity of the highest level and the lowest level (col. 3, lines 7-62, col. 4, line 63-col. 5, line 12).

As to independent claim 16, limitations of claim 1, and further comprising, the driving device being characterized by comprising a driving means for driving column electrodes according to a predetermined voltage pattern in each period formed by dividing a selection period of a display frame (col. 3, lines 7-62).

As to independent claim 17, limitations of claim, and further comprising, a timing control means which forms a combination of at least one of two continuous display frames in which the time ratio of a display frame period to the other is within 50 – 90%, and supplies to column drivers for driving column electrodes, a timing signal so that a selection period of at least one of the two continuous display frames is divided into two portions to produce an n (n: an integer of at least three) number of divided periods (col. 7, line 65-col. 10, line 9), a gradation processing means for producing n-bit gradation data based on inputted image data to write the n-bit gradation data in frame memories, and a column data producing means for producing column data by reading sequentially the n-bit gradation data which are stored in the frame memories in the respective divided periods and supplying the produced data to the column drivers (col. 5, lines 15-49).

As to dependent claim 2, limitations of claim 1, see limitations of claim 17, above.

As to dependent claims 3 and 4, limitations of claim 2, and further comprising, wherein the time ratio between the two continuous display frames to be displayed is 4:3 and the selection period of a shorter frame is divided to have a time ratio of 2:1; and wherein the time ratio between the two continuous display frames to be displayed is 9:6; the selection period of a longer frame is divided to have a time ratio of 8:1, and the selection period of a shorter frame is divided to have a time ratio of 4:2.. Scheffer et al disclose in Fig. 4, and col. 7, line 65-col. 10, line 9, the different time ratios as described by using the Walsh function.

As to dependent claim 5, limitations of claim 2, and further comprising, wherein on-data and off-data are mixed in each of the divided periods in two sets of combination of the two display frames to effect a gradation display by pulse width modulation (col. 5, line 65-col. 6, line 12 and col. 10, line 13-col. 11, line 48).

As to dependent claim 6, limitations of claim 1, and further comprising, wherein an imaginary row is formed in addition to the lines of row electrode; a selection period is divided into a plurality of divided periods; a voltage pattern is changed so as to reduce a change point of voltage level applied to column electrodes in the one selection period, and a gradation display is effected by applying voltages to column electrodes according to the changed voltage pattern (col. 5, line 65-col. 6, line 12 and col. 10, line 13-col. 11, line 48).

As to dependent claim 7, limitations of claim 1, and further comprising, wherein an imaginary row is formed in addition to the lines of row electrode; a selection period is divided uniformly into a plurality of divided periods; a voltage pattern to be applied to column electrodes is determined, and a gradation display is effected by applying voltages to column electrodes with use of a voltage pattern in which there is a single change point of voltage level to be applied to

the column electrodes in one selection period (col. 5, line 65-col. 6, line 12 and col. 10, line 13-col. 11, line 48).

As to dependent claims 9 and 13, limitations of claims 8 and 10, and further comprising, wherein among the plurality of voltage levels, voltage levels in the vicinity of the highest level and the lowest level are used relatively rare and voltage levels in an intermediate region are used relatively often (col. 3, lines 7-62).

As to dependent claim 10, limitations of claim 8, and further comprising, wherein the method is used for driving a liquid crystal display device wherein a multiple line simultaneously selecting method is used (col. 3, lines 7-62).

As to dependent claim 11, 12, 14, 15, and 20, limitations of claims 1, 8, 16 and 17, and further comprising, wherein in producing an m number of intermediate voltages between A and B where A represents the highest voltage level and B represents the lowest voltage level among the plurality of voltage levels, the number of gradation levels q selected from a range of not less than L and less than U given by Formulas (1) and (2) satisfies the relation of Formula (3): $L=(A-B) \times 0.25+B$ ...(1) $U=(A-B) \times 0.75+B$ ... (2) $0.55<q/m<0.75$ ...(3) ; and wherein in producing an m number of intermediate voltages between A and B where A represents the highest voltage level and B represents the lowest voltage level among the plurality of voltage levels, the number of gradation levels q selected from a range of not less than L and less than U given by Formulas (1) and (2) satisfies the relation of Formula (3): $L=(A-B) \times 0.25+B$ (1) $U=(A-B) \times 0.75+B$ (2) 25 $0.55<q/m<0.75$ (3), as shown in col. 3, lines 7-49, col. 5, line 15-49, 65-col. 6, line 12 and col. 10, line 13-col. 11, line 48.

As to dependent claim 18, limitations of claim 17, and further comprising, wherein the timing control means produces the timing signal so that the total time to of the continuously displayed two display frames is equal to a time of an input frame to which image data are inputted (Fig. 7 and 8).

As to dependent claim 19, see limitations claims 6 and 7, above.

Conclusion

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,

Arlington, VA, Sixth Floor (Receptionist)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 703 306 5575. The examiner can normally be reached on 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on 703 305 9720. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9314 for regular communications and 703 308 9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703 305 4700.

Srilakshmi K. Kumar
Examiner
Art Unit 2675

SKK
September 9, 2002

CHANH NGUYEN
PRIMARY EXAMINER